

Overview of a proposed Hydrometeorological Testbed (HMT) at the Hydrometeorological Prediction Center (HPC)



- **Why is an HMT needed?**
- **Vision for the HMT**
- **Scientific areas of particular need and interest for the HMT**
- **International component of the HMT**
- **Possible implementation schedule**

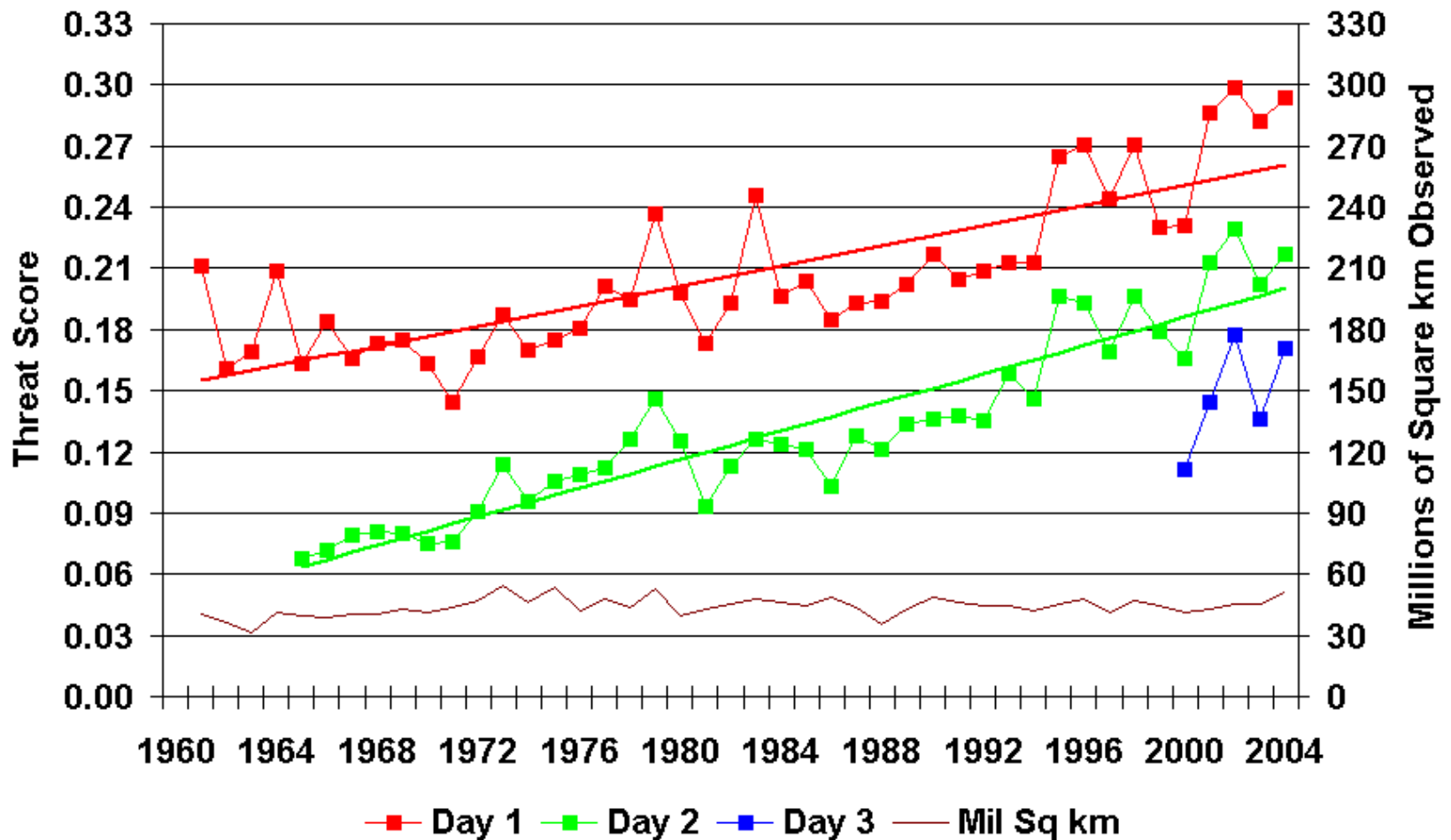
May 2, 2005

*Jim Hoke
Director, HPC & OPC*

Case for a Hydromet Testbed:

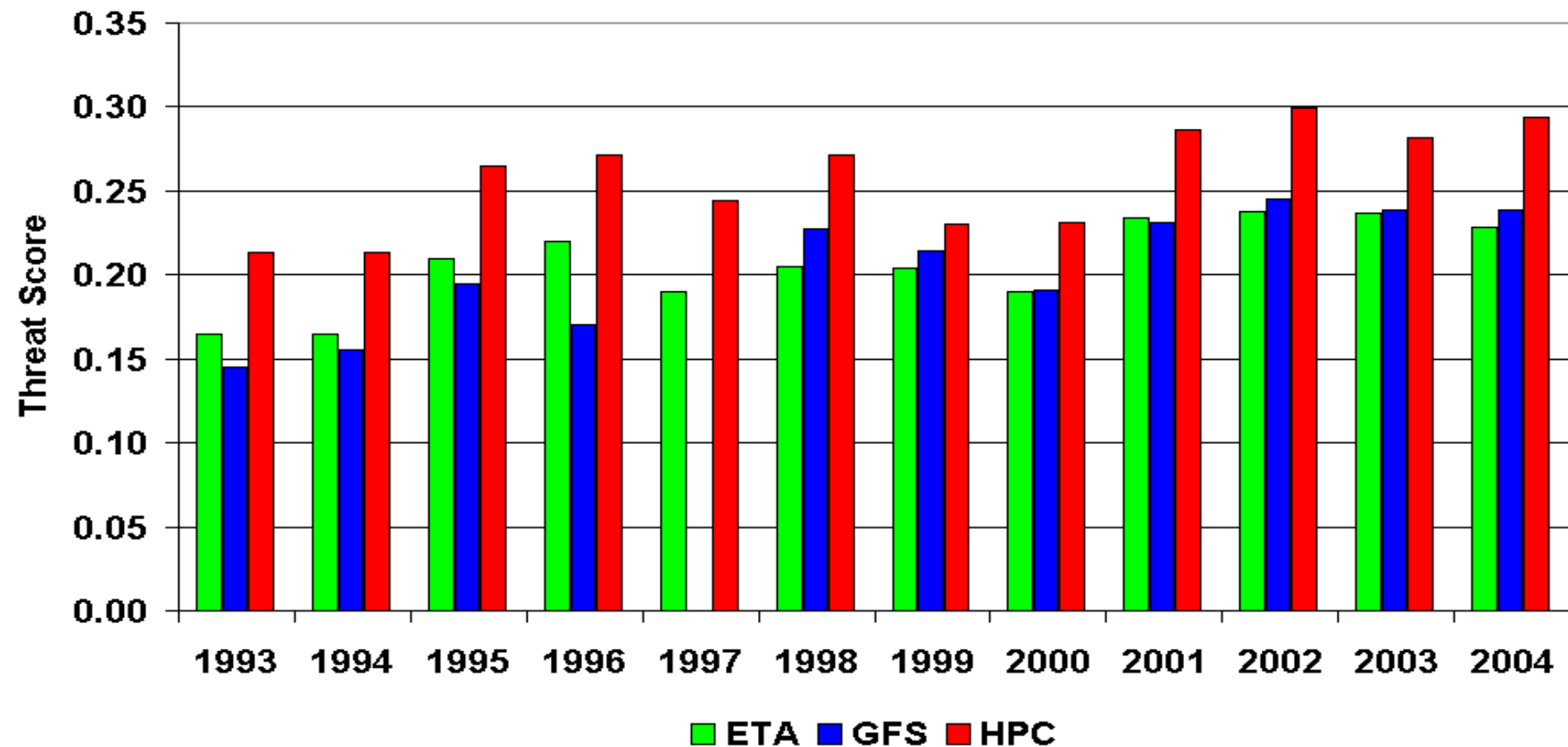
Accuracy of Precipitation Forecasts Is Improving, but Much Better Forecasts Are Needed

HPC 1-inch Threat Score for Days 1, 2, & 3



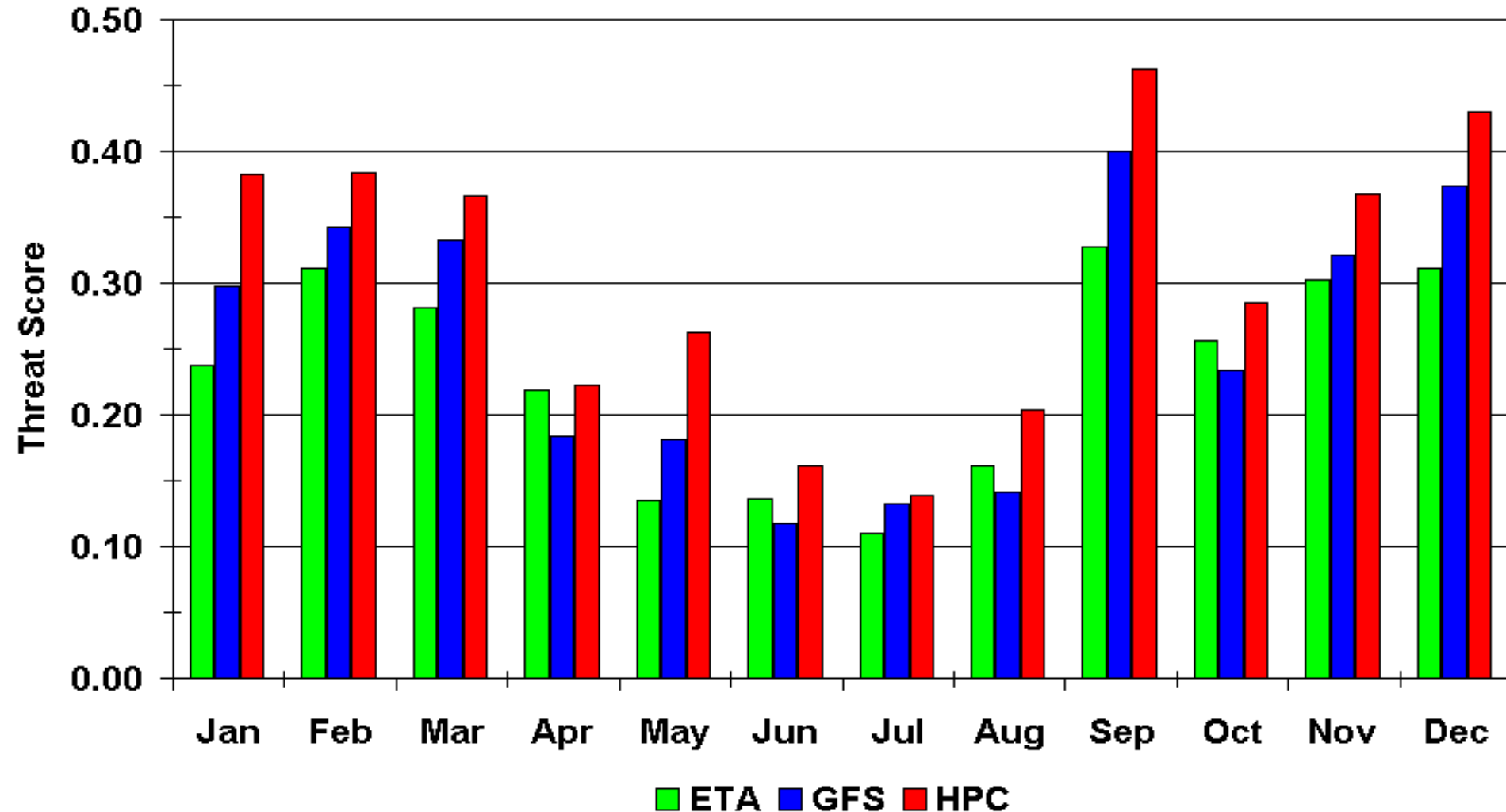
HPC Forecasters Add Value to Model Quantitative Precipitation Forecasts (QPFs)

Eta Model, Global Forecast System (model), and HPC
1-inch Threat Score for Day 1



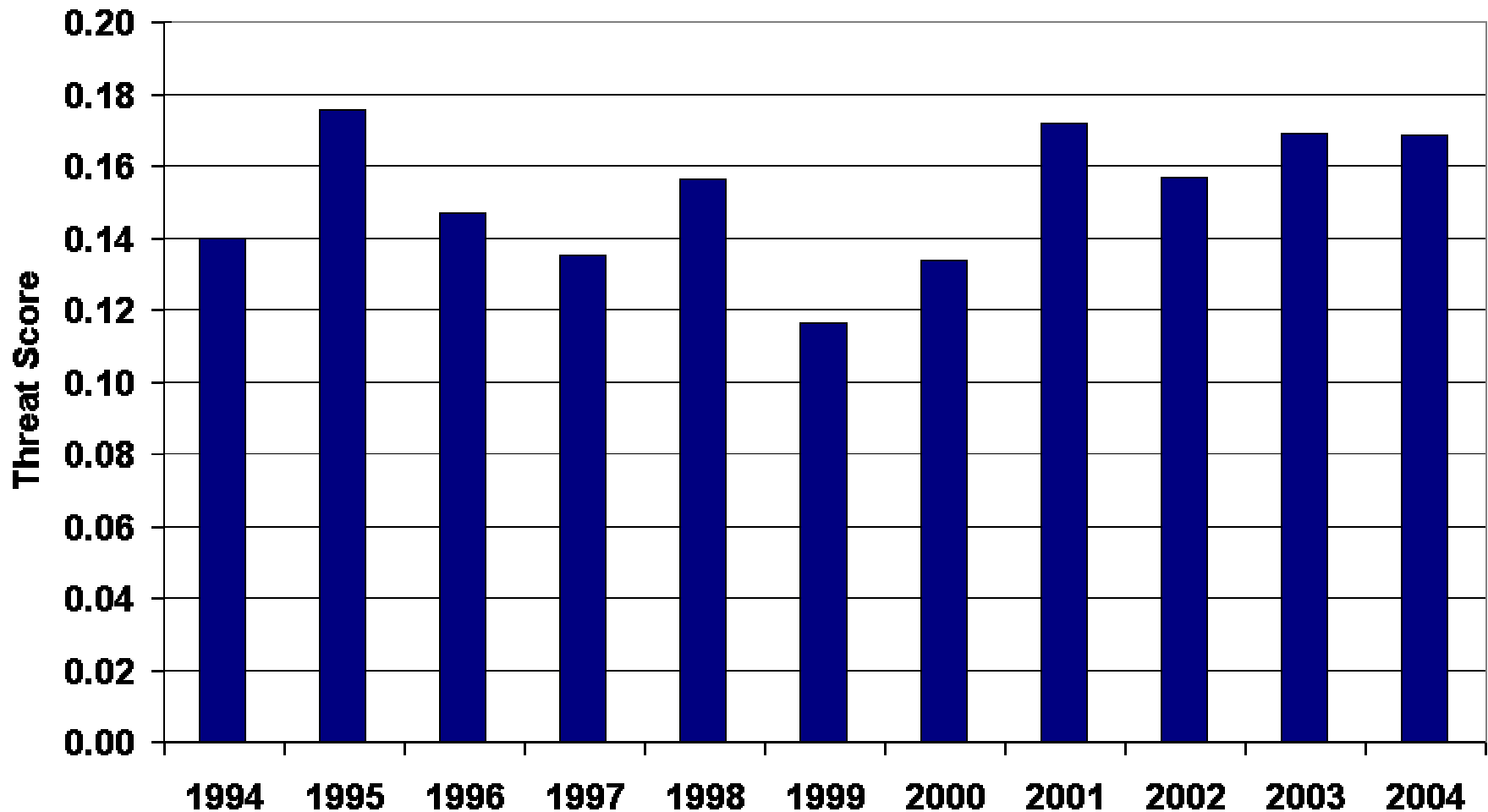
Warm Season QPF Skill is Low

Eta, GFS, & HPC 1-inch Threat Score for Day 1 (Jan-Dec 2004)



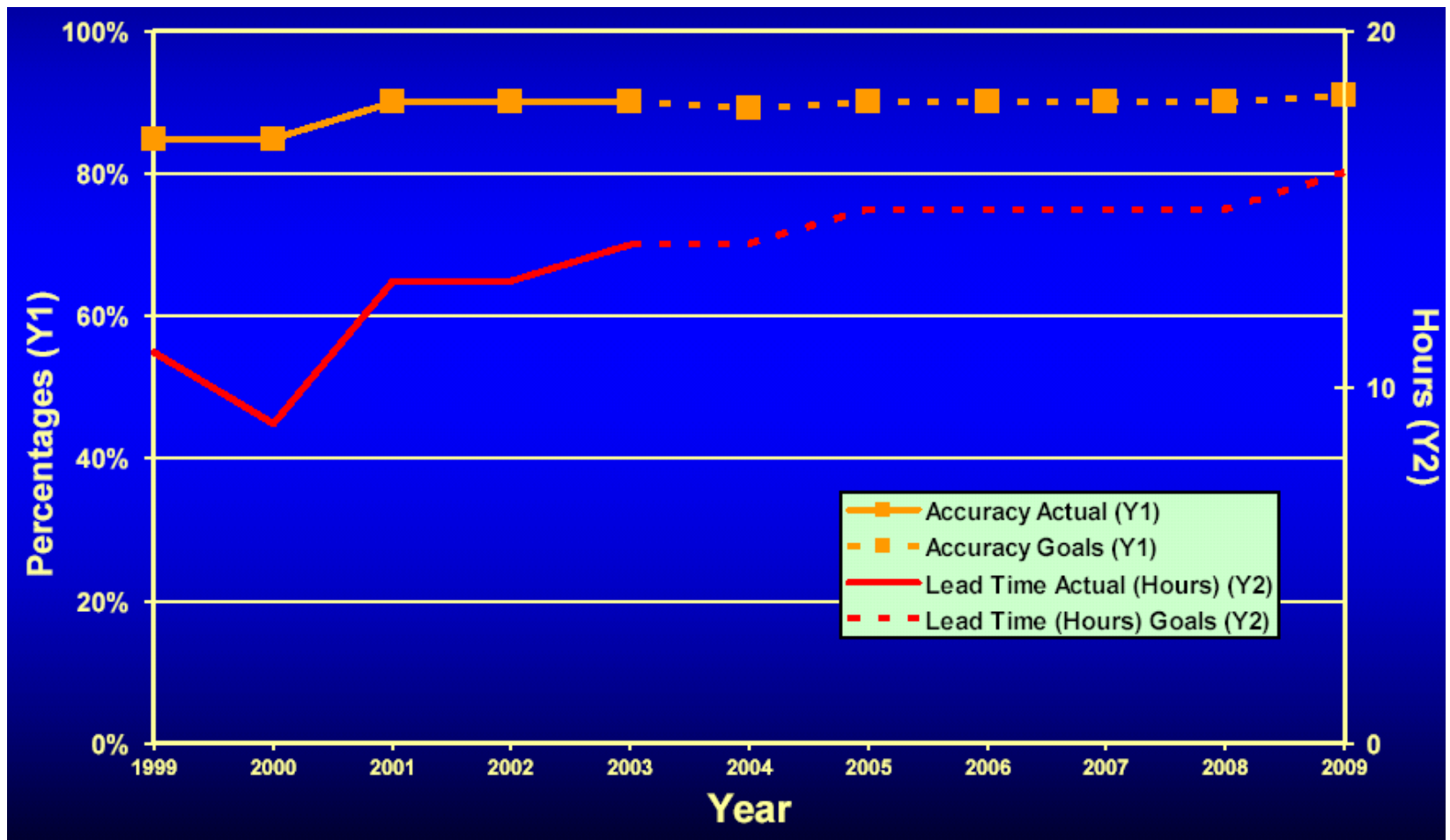
Little Improvement in Warm Season QPF Skill

HPC 1-inch Threat Score for Day 1 (June, July, August)



Additionally, Still Need To Improve Winter Weather Forecasts

U.S. NWS Accuracy and Lead Time for Winter Storm Warnings



Vision for the Hydromet Testbed

- To accelerate the implementation of operational hydrometeorological products and services, including enhancing & extending forecast skill for high-impact weather, especially precipitation, by facilitating interactions among researchers and operational forecasters.
- The HMT will be designed to:
 - accelerate the assessment and implementation
 - of new technology, weather research results, and observational & other scientific advances
 - from the research and development community.
- The overall goal is to broaden community participation to improve operational hydrometeorological predictions and services
 - for the hydrologic, emergency management, and other communities and for the public,
 - with a **focus on**
 - warm-season and cool-season precipitation
 - out through 14 days, with particular **emphasis on the first 3 days**.

Areas of Particular Need and Interest

- High-impact weather, especially precipitation associated with
 - Land-falling tropical cyclones
 - Weakly forced summertime air masses
 - Winter storms
- Use of ensemble model output and forecaster generation of probabilistic products
- Exploring future roles of weather forecasters

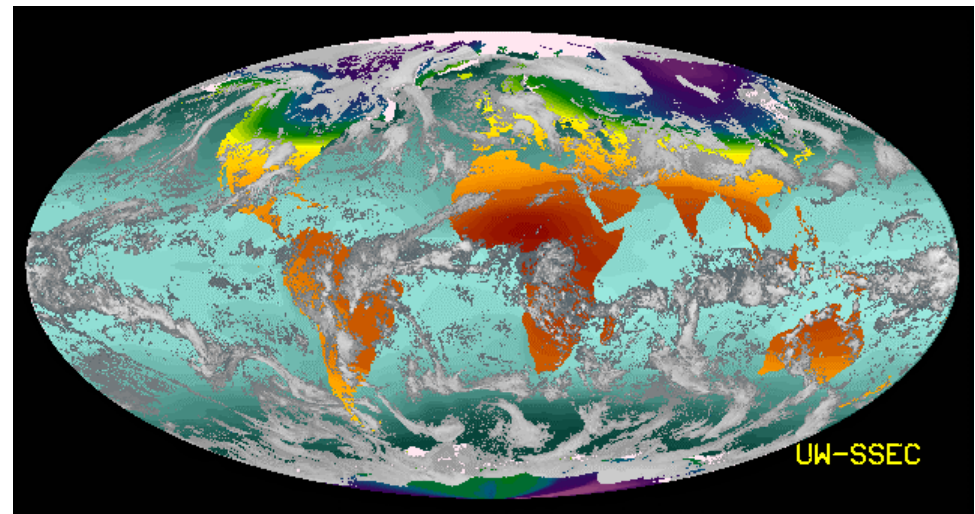
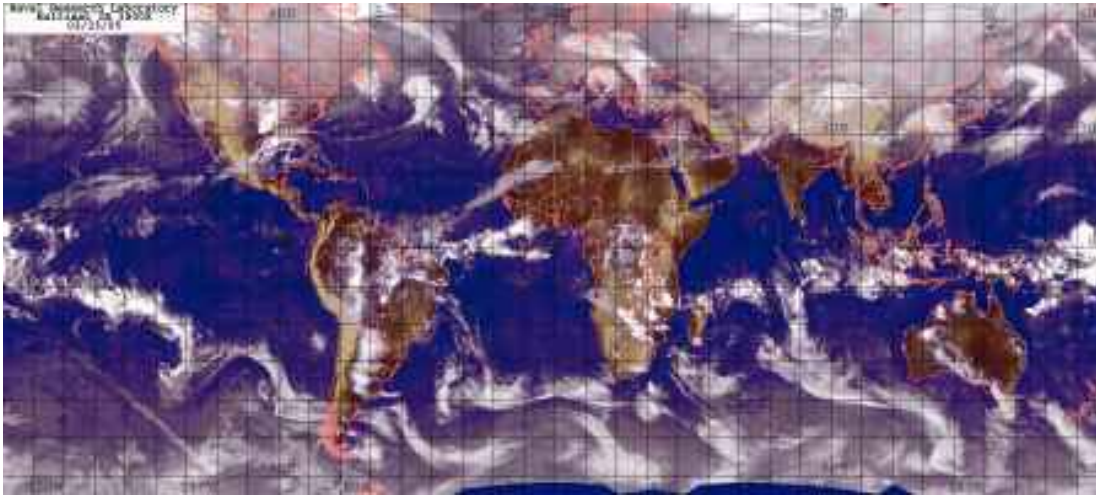


NCEP Ideally Suited to Host Hydromet Testbed

- **Experience:** HPC has done QPF for over 40 years and continues to add value to model output
- **Co-location of HPC with:**
 - Environmental Modeling Center (EMC)
 - Joint Center for Satellite Data Assimilation (JCSDA)
 - National Precipitation Verification Unit (NPVU)
 - NCEP International Training Desks
 - Currently serve countries in South, Central, & Caribbean America
 - Climate Prediction Center (CPC)
 - NESDIS Office of Research & Applications; Satellite Services Division
 - Easy access to other NWS & NOAA groups in Washington area
- **HPC expanding real-time collaborative forecast activities with Weather Forecast Offices and River Forecast Centers of the U.S. National Weather Service and others**



International Component of the HMT





Status of Hydromet Testbed Proposals

- HMT proposals are being considered by NOAA & WWRP
- WWRP resolution for joint HPC-WWRP Workshop in 2004-2005 at HPC (Oslo, Sep 2003)
 - To explore testbed structure, scope, and terms of participation by WWRP members & NCEP
- Testbed discussion at WWRP Nowcast Working Group meeting (Helsinki, Jun 2004)
- WWRP/SSC briefed on HMT proposal and endorsed U.S.-hosted workshop of Invited Experts to refine the concept of operations and implementation plan for the HMT (Boulder, Oct 2004)
- Preparations ongoing for the *Invited Experts Workshop on a Proposed Hydrometeorological Testbed*, May 17-19, 2005, at HPC
- HMT funding through NOAA requested for Fiscal Year 2007 (Oct 2006-Sep 2007)
- Resources within NCEP being reviewed to see what can be reallocated to support creation of HMT

Proposed Schedule for the Establishment of the HMT

- May 17-19, 2005 – U.S. hosts WWRP-supported *Invited Experts Workshop on a Proposed Hydro-meteorological Testbed* to refine the concept of operations and implementation plan for an international component of the HMT (HPC, Camp Springs, MD)
- Jun 2005 – NOAA reviews the recommendations of the *Experts Workshop* to the World Weather Research Program
- Jul 2005 – NCEP establishes management structure for the HMT
- Oct 2005 – some limited HMT activities using existing resources
- Oct 2006 – proposed NOAA funding for HMT begins
- Jan 2007 – expanded HMT operations begin